Update on the Enewetak Radiological Protection Monitoring Program

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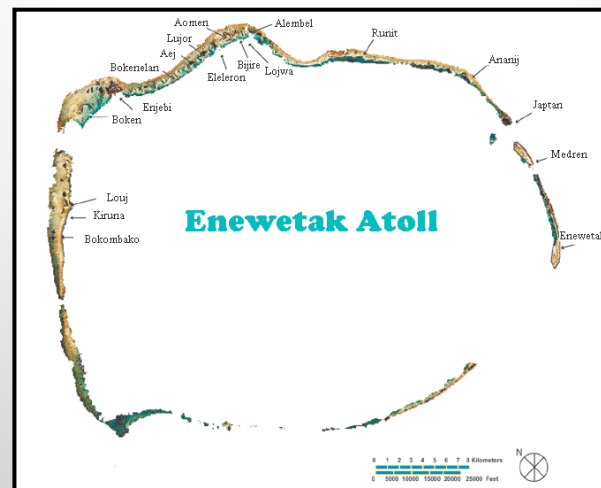**DOE-Enewetak Community Meeting, Enewetak Atoll, Republic of the Marshall Islands**

Why are we here and what are we going to talk about?

- ❑ Highlights from a recent field mission to Runit Island
- ❑ Discussion on results from radiological protection measures on Enewetak
- ❑ Call for bioassay volunteers

Runit Dome on the northern end of Runit Island, Enewetak Atoll

Enewetak Cleanup Program (1977-1980)

❑ The cleanup program involved removal of contaminated soil and debris from islands and disposal of the material inside cactus crater on Runit Island.

❑ The crater was subsequently capped with concrete (site known as Runit Dome).

❑ Historically Runit Dome has only been monitored using photographic survey techniques.

❑ Centered around requests from the Enewetak leadership and their legal council, the U.S. Government recently passed a new Public Law (PL) calling on the Department of Interior to fund a program to establish a long-term monitoring program for Runit Dome.

- ❑ **First Phase of the project was designed to study the integrity of the concrete structure**
- ❑ **Study completed during May 2013**

Cleanuconditions

Initial conditions
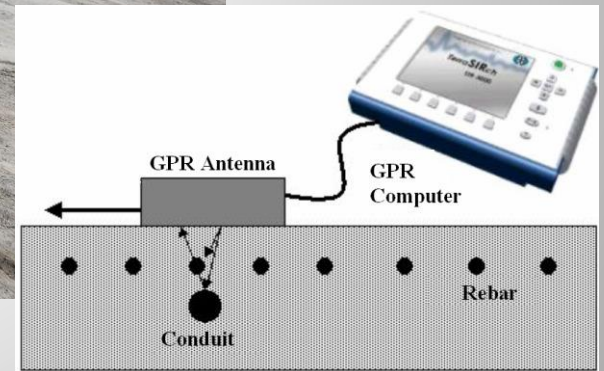
Initial conditions
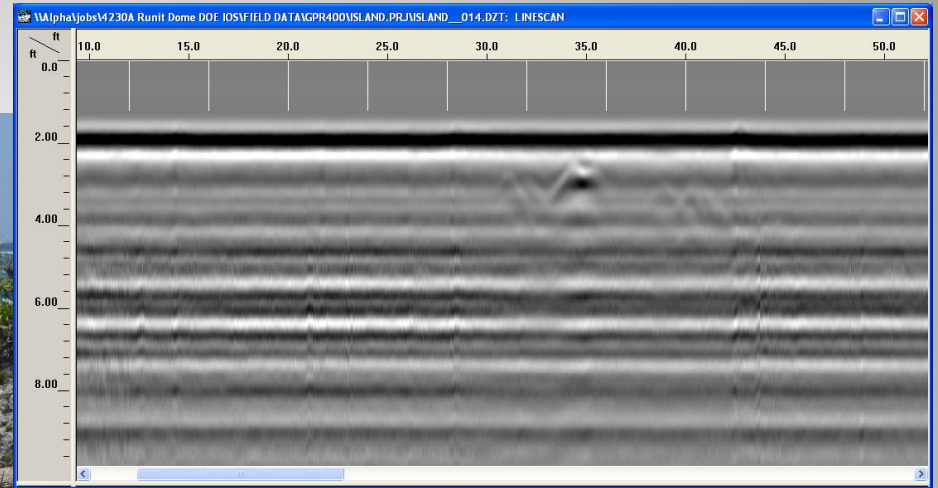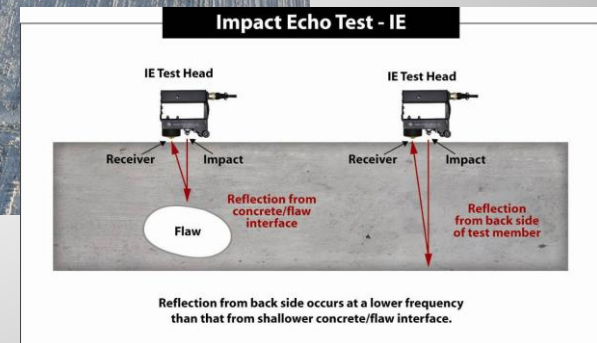
Cleanup of Site

Cleanup of Site

Survey Measurements

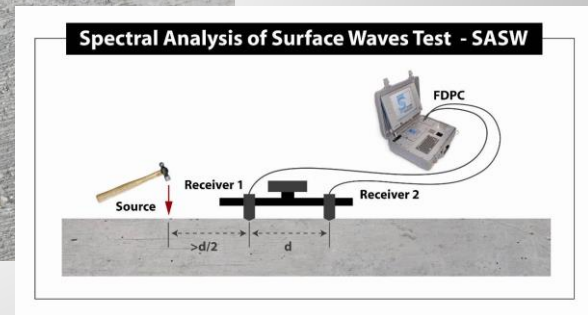

Ground Penetrating Radar (GPR) Nondestructive Testing

Survey Measurements

Impact Echo (IE)
Nondestructive Testing

Survey Measurements

Spectral Analysis of Surface Waves (SASW) Nondestructive Testing

General Findings

❑ Concrete is structural sound.

❑ The survey shows that Runit Dome only contains a handful of locations (<1%) that are likely to be poorly supported or voided.

❑ There are many reflections of objects buried beneath the dome cap, concentrated on the middle sections (rows D-F) of the dome.

Whole Body Counting Chair

2001-2013, Radiological Protection Monitoring for the People of Enewetak

❑ A permanent radiological facility was established on Enewetak Island during 2001 (operated and maintained by trained local technicians)

❑ More than 1000 people from Enewetak have since received tests for the amount of radiation in their bodies

Types of Radiation

❑ **Whole Body Counting** – type of radiation that we can see from outside the human body, e.g., Radioactive cesium or cesium-137 (^{137}Cs)
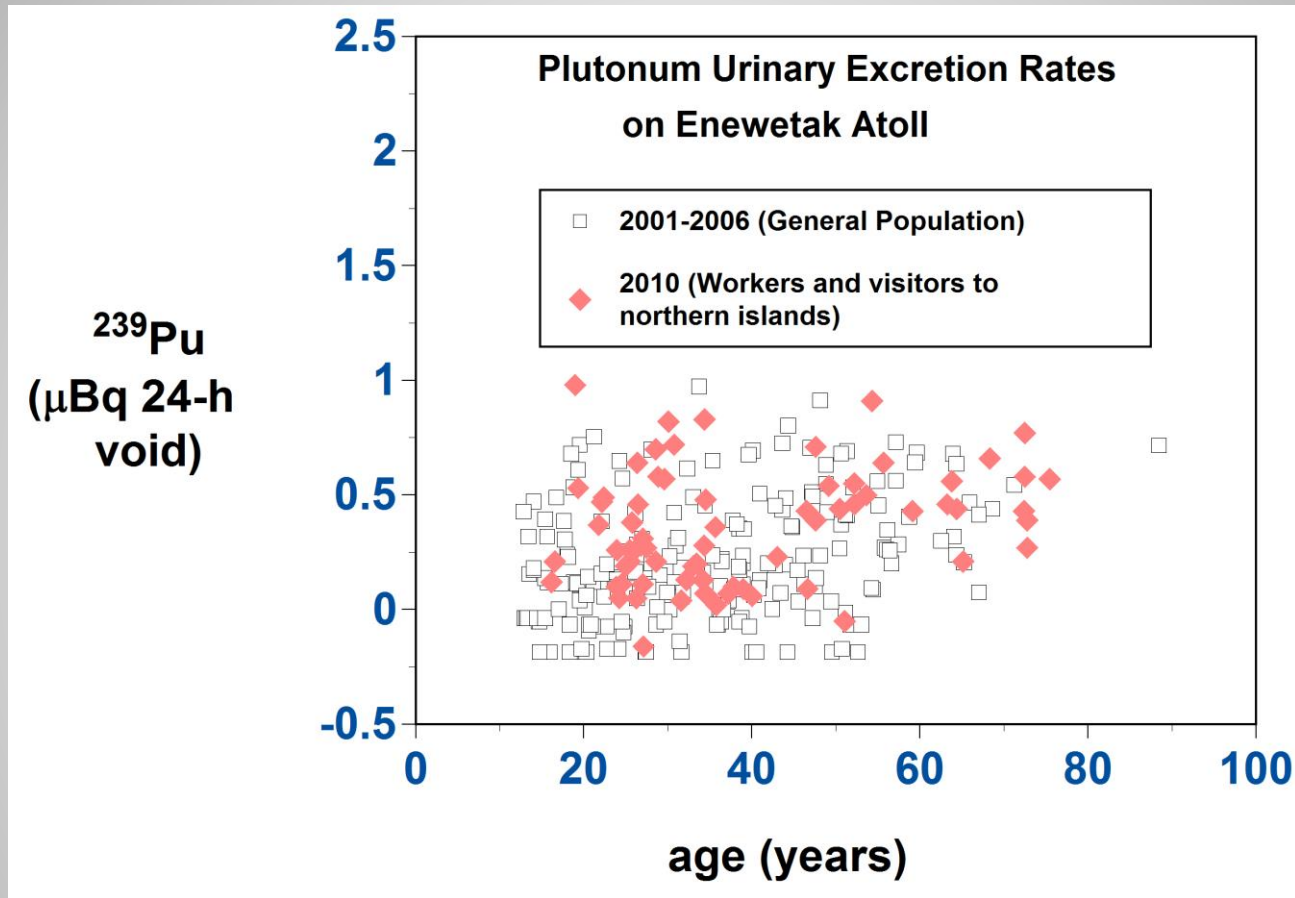
❑ **Bioassay Testing** – type of radiation that we need to test for from inside the body (using a bodily fluid such as a bioassay or urine sample), e.g., Plutonium and Strontium-90
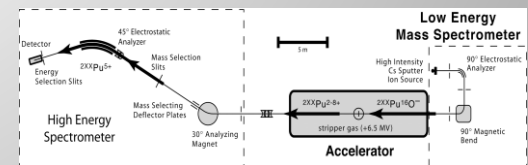
Test is performed at the Livermore Laboratory in California

Plutonium Bioassay on Enewetak Atoll

Plutonum Urinary Excretion Rates on Enewetak Atoll

^{239}Pu (µBq 24-h void)

age (years)

- □ 2001-2006 (General Population)
- ◆ 2010 (Workers and visitors to northern islands)

No evidence of increased levels of plutonium exposure and uptake in the bodies of copper diggers and other visitors to the northern islands

# Plutonium Bioassay on Enewetak Atoll
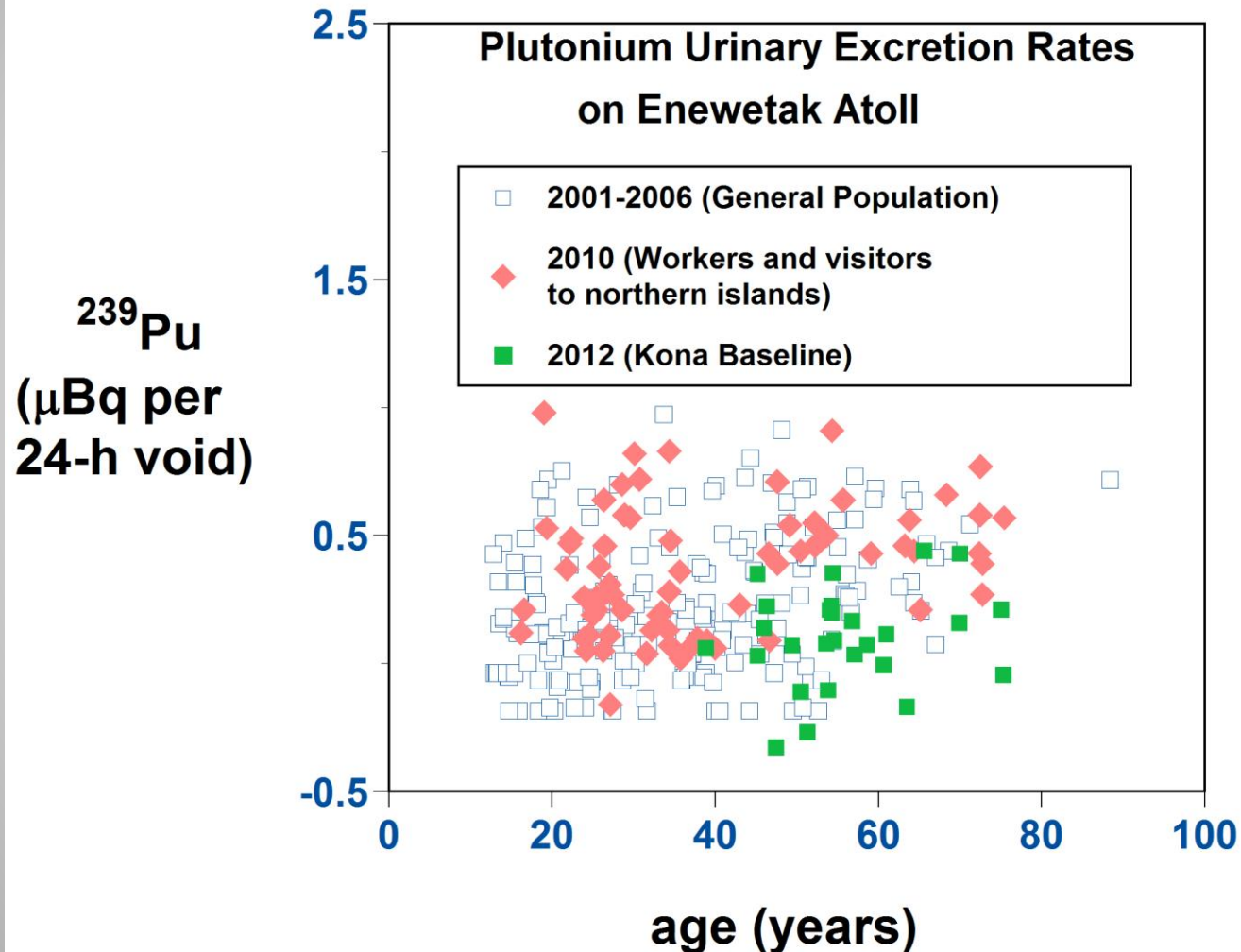
# REQUESTs FOR VOLUNTEER PARTICIPATION IN OUR BIOASSAY PROGRAM

Criteria for Recruitment of Volunteers:-

i.   Local residents who have been visiting or working up on the northern islands of Enewetak over the past 1 to 3 years

- ❑ Special interest in monitoring people who have been working on Runit Island
- ❑ Selected volunteers who have regularly participated in our program during the early 2000's

ii. Kona baseline collection

- ❑ Additional collections planned for 2013

Plutonium Bioassay on Enewetak Atoll
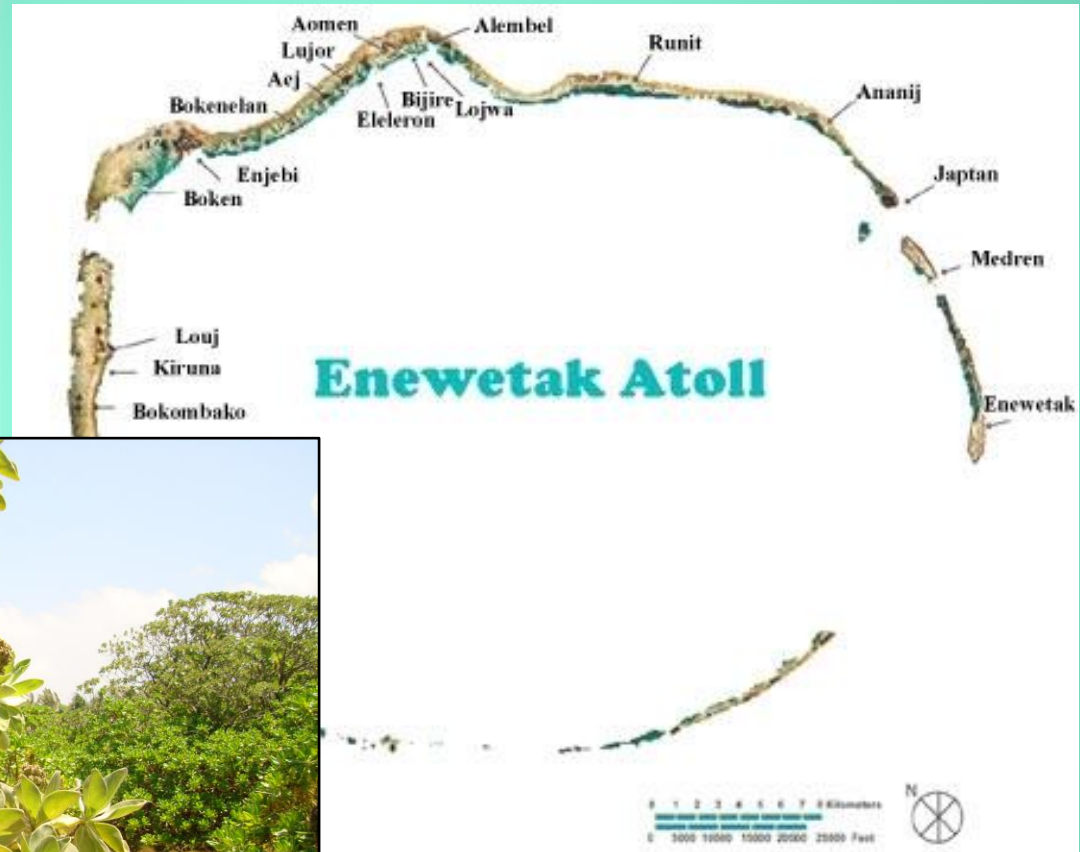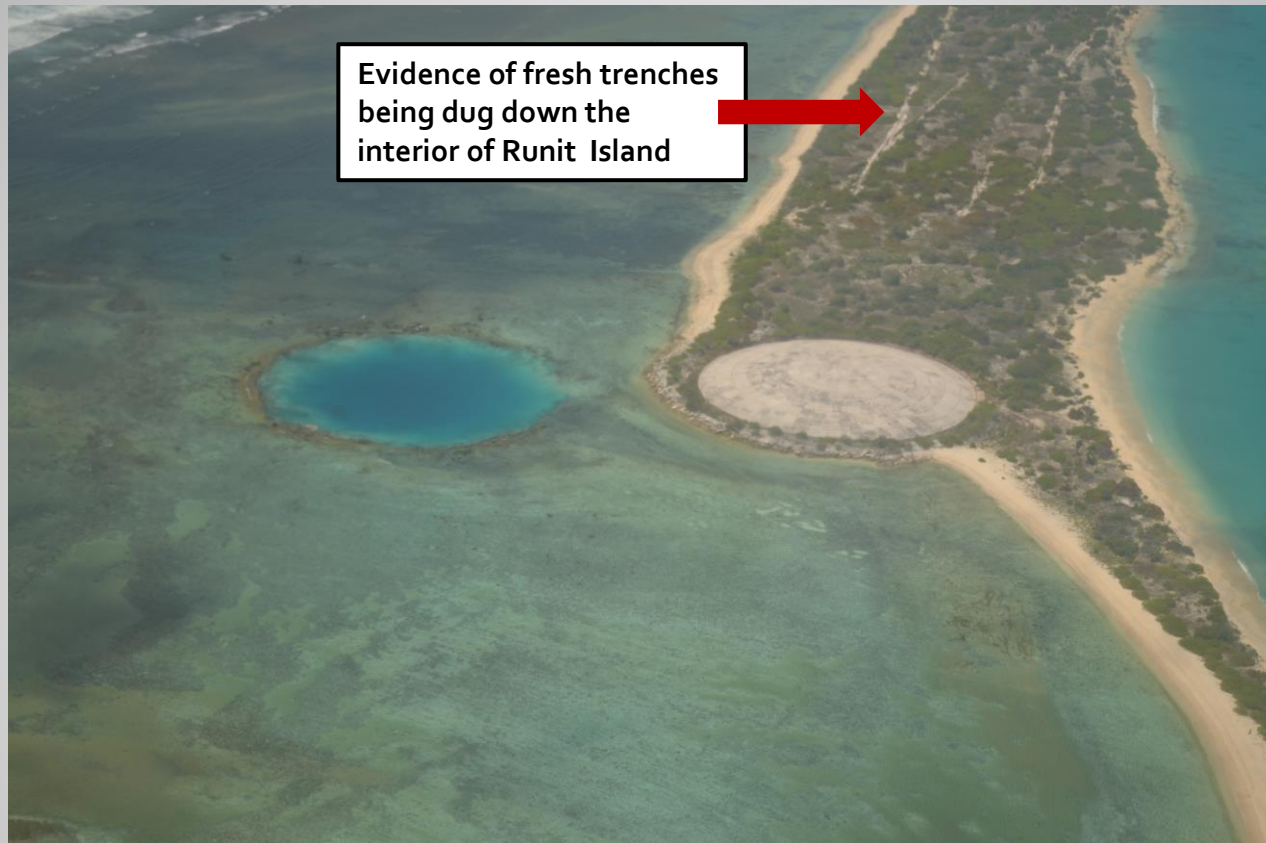
Future Plans: Existing call to include workers who have been up on Runit Island

❑ See no evidence of elevated levels of plutonium uptake on Enewetak, however;

❑ We would advise the leadership and local resident community to take the following actions.

(i) **Limit time spent on Runit Island – preferably don't go digging around in the dirt.**

(ii) **Wear a dust mask to help reduce the risk of any possible exposure – this advisory need only apply to certain northern islands and more specifically to Runit Island.**

Kommol Tata
(Thank you)